

A YEAR FROM NOW, this location will house the hardware of PBFA-II. Pace VanDevender (1260) is on a catwalk overlooking the accelerator's target area where Pete Pankuch, EG&G (left), and PBFA-II Project Manager Gerry Barr (1201) are standing. Gerry reports that several contracts have recently been awarded that will move the program ahead on schedule.

### **Diodes, Ions Selected**

## **Final Design of PBFA-II Set**

With two key decisions by Pulsed Power Sciences Directorate 1200, the way is clear for final design and construction of the heart of Sandia's 100-trillion-watt Particle Beam Fusion Accelerator II (PBFA-II), which will become the world's most powerful particle beam accelerator when it goes into operation in Area IV in January 1986.

First, lithium ions — rather than protons, the competing candidate — will be used to bombard the target in the 36-beam accelerator, says Pace VanDevender, manager of Fusion Research Department 1260.

A second decision is that the "applied-B" diode has been chosen for initial use on the giant accelerator.

The choices of ion type and diode design were accompanied by a third decision. This was to concentrate resources by suspending research on an entirely different, alternative method of pellet ignition — the Scorpio program. This strategy would have used imploding foils to make X-rays to implode a fuel pellet. "Those Sandians who had been working on the Scorpio program are now helping to solve remaining problems with lithium ions and the applied-B diode," Pace says.

Several challenges face the PBFA scientists in the two years before PBFA-II operations begin. The main task for 1984 is to find the best way to make the plasma that serves as the source of lithium ions. Plasmas form and cover the anode and cathode a few nanoseconds after arrival of

a pulse from the accelerator. Ions are extracted from the anode plasma and accelerated toward and through the cathode. "There are 16 different ways to produce the plasma, and we have now chosen six of them to pursue," Pace says.

"At the Beams '83 Conference in San Francisco last September, we asked the worldwide light-ion fusion community for ideas and help in meeting the challenge," says Pace. "The response thus far has been encouraging. In fact, we've recently awarded a contract to GT Devices that's based on its response to our appeal."

Lithium ions were chosen over hydrogen ions (protons) as the bombarding particle for PBFA-II primarily because a lithium beam is more focusable than a proton beam.

Lithium ions are about seven times more massive than protons (a lithium nucleus contains three protons plus four neutrons), and experiments at Sandia, Cornell University, and Osaka (Japan) all indicate that heavier ions are more focusable than protons. Therefore, a lithium ion beam tends to

propagate in a straighter line and not be deflected nearly as much by perturbing magnetic fields. It can therefore be aimed at the target more precisely.

Furthermore, experiments have shown that a lithium beam spreads out (diverges) much less than a proton beam, so the "brightness" of a lithium beam is much greater than the brightness of a proton beam.

All in all, the experiments indicate that a lithium-ion beam is two to five times more focusable than a proton beam. "Since power density increases as the square of focusability, this means that the power density at the target is greater by as much as a factor of 25," says Pace.

The choice of lithium ions also allows diode operation at higher voltages and with larger gaps between the anode and cathode than is possible with protons. As a result, diode impedance is nearly constant in time with lithium ions, so the diode couples to the accelerator efficiently throughout the entire pulse. The larger anode-cathode gap

*(Continued on Page Four)*



# **LAB NEWS**

VOL. 36 NO. 5

SANDIA NATIONAL LABORATORIES

MARCH 2, 1984

# Antojitos

Lend Me Your Ears, I Mean Eyes--Luckily for the LAB NEWS, the assistant editor and I seldom disagree. But we don't see eye-to-eye about Christmas (see the 12/16/83 issue) and Shakespeare. I find Shakespeare delightful, which is why I'm currently working with a troupe of "players" bringing the bard to life (we hope) for our audiences. The man could write. After you read a string of words he put together, you get the feeling that this is the best, if not the only, way to string them. Lines from Shakespeare are a rich part of our cultural heritage. But they're not meant to be read, like a newspaper; they're meant to be spoken--"trippingly on the tongue."

Try--aloud--some of these lines from the scenes we're doing (better do it after work): "But soft! What light through yonder window breaks? It is the East, and Juliet is the sun." "What's in a name? That which we call a rose By any other name would smell as sweet." "Good night, good night! Parting is such sweet sorrow, That I shall say good night till it be morrow." "To be, or not to be, that is the question." "To sleep-- perchance to dream. Ay, there's the rub!" "How sharper than a serpent's tooth it is To have a thankless child!" "Beware the ides of March." "Friends, Romans, countrymen, lend me your ears; I come to bury Caesar, not to praise him." "Why, there's a wench! Come on and kiss me, Kate." "Is this a dagger which I see before me, The handle toward my hand?" "Tomorrow and tomorrow and tomorrow Creeps this petty pace from day to day, To the last syllable of recorded time." "Life's but a walking shadow, a poor player That struts and frets his hour upon the stage And then is heard no more: it is a tale Told by an idiot, full of sound and fury, Signifying nothing." "Blow, wind! Come, wrack. At least we'll die with harness on our back." (This last is known as "Theme from Field Test.")

Want to come see? Performance dates are in the Events Calendar. ●BH

\* \* \*

Not Newton's Third Law of Motion--For every action, there's an equal and opposite criticism.

## Go for Health

### New Clues

To help you learn more about diet, cholesterol, and heart disease, Susan Harris of Sandia Medical is offering a "Go for Health" program, Cholesterol: New Clues, on Wednesday, March 7, 12 to 12:30, in the Theater Building 815 (outside the Tech Area).

There is now general agreement that high cholesterol levels in the blood increase the risk of heart attack. The news from the recent Coronary Primary Prevention Trial is that lowering blood cholesterol through diet and drugs does lower the risk of heart disease. The questions that remain are: Will diet by itself help? And will diet help everyone?

People are as individual in their metabolism as they are in their looks or the way they think. And metabolism determines whether the cholesterol we eat is excreted harmlessly or clogs our arteries.

There's one way to tell whether a diet will lower your cholesterol. Try it. If your cholesterol level is high, try a diet low in saturated fats and cholesterol for at least six to eight weeks. Then have a second blood test done to see whether the diet is working.

Cholesterol is a vitally important substance. In a single day, the liver typically makes 1000 mg for such things as cell membranes, hormones, and bile aids for digesting fats.

The typical American diet supplies 600 mg of cholesterol a day over and above that made by the liver. Although this is a lot less than the liver makes on its own, in some people the excess seems to impair the body's ability to minimize the amount of cholesterol circulating in the blood.

The amount of cholesterol circulating in your blood is influenced more by the amount and kinds of fat you consume than by the cholesterol you eat. Specifically, diets rich in saturated fats tend to raise blood cholesterol, and polyunsaturated fats help to lower it.

However, the picture is not so simple. Not all cholesterol found in blood is the same. Cholesterol, a fatty substance, is not soluble in water and does not travel through the blood by itself. Rather, it's carried in an envelope of *lipoprotein* (literally, fatty protein). *High-density lipoproteins* (HDLs) are sometimes casually referred to as "good cholesterol." As a rule, HDLs protect against heart disease by removing cholesterol from artery walls and returning it to the liver for excretion.

*Low-density lipoproteins* (LDLs) have the opposite effect. LDLs are referred to as "bad cholesterol" and tend to deposit on artery walls and clog them.

Other factors besides diet influence the amount and type of cholesterol and fat in the blood. These factors include weight, exercise, smoking, and possibly stress.

So what's the bottom line? While a diet low in saturated fats and cholesterol is no guarantee of protection for an individual, it can weight the odds in your favor. In heart disease, no dietary factor has yet been shown to be more strongly linked to premature death and disease than saturated fats and cholesterol.

## 'Success Story'

### Sandians Are Special People

This is a \$200 success story, but it starts with one of the worst feelings around. The bag is packed and you're all set to go to the airport so you check your tickets and travel money. No travel money.

Well, using your magic credit card you make the trip anyway, and a couple of days later when you get back you try to figure out what happened to the \$200. You remember signing for it at Finance when you picked up the tickets and you stuffed the crisp new bills into the envelope with the tickets. Then you jumped into the electric cart and head-

ed back to the office in Bldg. 823 during one of the worst windy afternoons in Albuquerque in a long time.

Craig Searls (6257), the unfortunate described, figured the cash was blowing in the wind, long gone, but he called Finance anyway. They told him to check with Cleavord Giles in Security 3432.

Giles was cagey. He wanted to know the denominations of the missing bills. Easy. Craig remembered two fifties and five twenties. Giles told him that he had won the jackpot. The cash had been turned in by Paul Benson (2153).

Paul said he was walking up to the east entrance of Bldg. 823 "in a gale." He saw this green bill blowing around so he grabbed for it. It was a fifty. He saw another bill blowing in a corner near the door, swirling around in a wind eddy with a lot of leaves, bits of paper, and trash. At this point, he looked around very carefully and gathered up the rest.

Back in the office, Paul discussed his find with Dave Weingarten Division 2153 supervisor. They guessed that someone had lost some travel money and called Giles. This is almost the end of the story.

"It turns out that I had never met Craig," Paul says, "and he works a couple of doors down the hall. He bought lunch and we're friends. Turning the money in was no big deal. Any Sandian would have done the same."

Now *that* is a success story.



## LAB NEWS

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# Sandian Visits Novosibirsk

Steve Margolis (8231) delivered a lecture on his combustion research last summer at the Siberian branch of the USSR Academy of Sciences in Novosibirsk and had the rare opportunity to tour one of Russia's leading national laboratories and one of its largest computing centers.

Steve's invitation to discuss his area of combustion research resulted from earlier correspondence in technical publications. Steve included the visit after a trip to France where he took part in an international combustion meeting in Poitiers.

In Moscow he stayed two nights at the Academy of Sciences Hotel, a facility reserved for top scientific visitors from all over the world. There he met two other Americans who were also traveling to Novosibirsk, one from the Air Force Weapons Laboratory in Albuquerque and the other from Los Alamos. He noticed that because his visa had been stamped "Academy of Sciences," his baggage was never searched nor was he ever detained at checkpoints like other foreign travelers.

Following a guided tour of Red Square and the National Museum of Russian History, he next was flown to Novosibirsk, Siberia's largest industrial and scientific center. Unless an invitation is extended to a scientist, few westerners ever see this part of the Soviet Union. The national Science Center of the Siberian Division of the USSR Academy of Sciences contains more than 100 affiliated research institutes and employs a staff of more than 70,000 people. The institute Steve visited was in the nearby city of Akademgorodok (Academic Town).

During his five days there, he delivered his paper, "Nonlinear Stability and Bifurcation in Premixed Flame Propagation," at the workshop on gas flame structure. His co-participants were mostly Russian and Eastern Bloc scientists plus a dozen outsiders from France, England, and West Germany. Most of the 50 papers presented dealt with experimental work in combustion; the remainder discussed analytical and computational research.

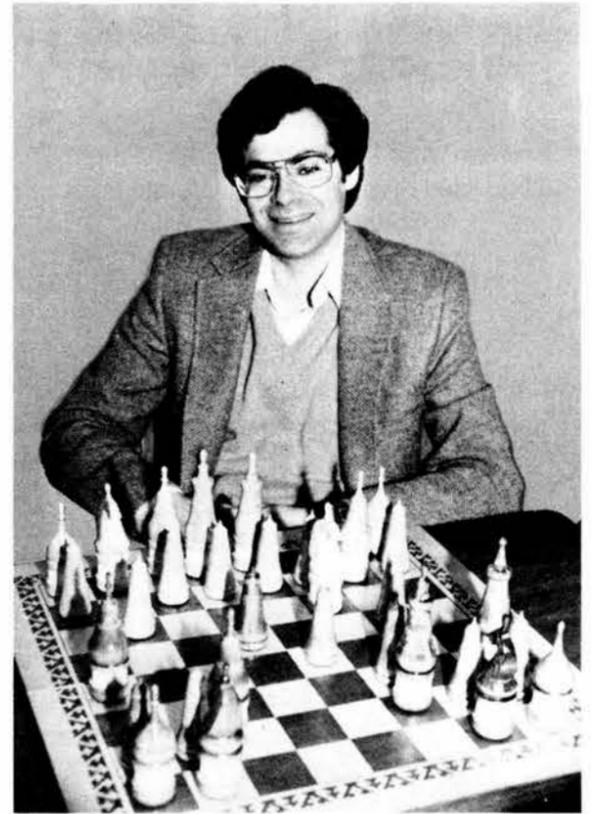
The workshop offered simultaneous interpretation via headphones from Russian to English and vice-versa. Steve had thought that many scientists had some knowledge of English, but most did not. Consequently, conversation was extremely difficult without the services of an interpreter.

Steve was allowed to tour the lab's computing center, built in 1964 but billed as one of the leading computer facilities in the Soviet Union. The hardware includes three BESM-6 computers (similar in speed and memory capacity to CDC 6600's). They are used in the batch processing mode by more than 1000 programmers from various institutes in the Siberian Division and handle an average of 1000 jobs per day. Some 30 percent of the users operate in the remote batch processing mode, Steve learned, and

about 90 terminals are connected to the system from labs around the institute, in the general access room of the computing center, and in schools at Akademgorodok.

Steve also learned why Soviet researchers are so anxious to obtain reprints from published material elsewhere in the world. One of the western speakers brought along a stack of reprints to pass out during his presentation. When he laid them on the table, nearly everyone in the room immediately rushed to the front to obtain copies. When Steve inquired about this great demand for reprints that could easily be copied from international open literature, he learned that the Soviet Union does not manufacture copy machines; the researchers must rely instead on copiers imported from the West. The institute he was visiting had only one copier for the laboratory of almost a thousand people, and access to it was very limited.

On his return to Moscow Steve visited another Soviet national research facility, the Institute for Problems in Mechanics. Here he attended a reception and delivered a short synopsis of his work. He also met the renowned Russian scientist Ya. B. Zeldovich, a leader in his country's combustion research for some 50 years.



HANDPAINTED WOODEN chess set was a souvenir Steve Margolis (8231) purchased while in the Soviet Union.

Looking back on his trip, Steve says he got the impression that Soviet efforts in combustion research generally lag behind those in the West. Nonetheless, he felt the trip was very worthwhile, giving him a new perspective on Soviet science as well as life in the USSR in general.



## SANDIA LIVERMORE NEWS

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MESA STUDENTS from El Cerrito High School toured Sandia Livermore on Jan. 13 to get a look at careers in the fields of science. The MESA (Mathematics, Engineering Science Achievement) program is designed to increase minority enrollment in engineering and scientific undergraduate programs. The group toured the experimental mechanics laboratory, the computer-aided design center, and a coal combustion laboratory after hearing welcoming comments from Leo Gutierrez (8400) and seeing films on Sandia. Here, Jack Jones (8274) leads a tour through the computer-aided design facility.

### Congratulations

Susan and Jack Hyzak (8314), a son, Daniel John, Dec. 30.

Norma Calderon (8265) and Philip Zablocki (8465), married in Pleasanton, Dec. 17.

Cindy and Graham (8444) Thomas, a daughter, Alyssa Rae, Jan. 26.

Gail and Nick Sabo (8265), a son, Daniel Neville, Feb. 15.

## PBFA-II Design

possible with lithium ions also contributes to lessened divergence. The larger voltages made possible by lithium allow greater beam brightness. "Focusability goes up rapidly with increasing voltage," Pace points out.

"The choice of lithium tells us how to build PBFA-II. And it tells us that the applied-B diode is the one to go with."

\* \* \*

Another step toward definition of PBFA-II came when the Sandia team proved on PBFA-I that a fast-opening switch originally invented by Cliff Mendel (1264) in 1975 (and later transferred through Defense Nuclear Agency to the Naval Research Lab where it was further developed) could be used to boost the voltage of particle beam accelerators. The motivation for the new switch is that the energy required to drive an ICF target decreases rapidly as the pulse duration is shortened. The switch essentially cuts the pulse duration by a factor of two and thus reduces the input energy needed by a factor of eight.

Boosting the voltage of PBFA-I will allow the study team to test some of the physics of lithium ion production in 1985. The goal is to demonstrate success of power concentration with the lithium diode and then to apply it on the PBFA-II accelerator in 1986-87. Target experiments leading toward laboratory ignition or thermonuclear fuel in the laboratory will begin in 1988.

## Events Calendar

- March 2-3, 9-10* — "What You Will," scenes from Shakespeare's greatest hits, 7:30; Albuquerque High School March 2-3; Eldorado High School March 9-10; \$2.50; 898-3963.
- March 2-4* — "Spoken Dreams Before Mourning," Fri. and Sat., 8 p.m.; Sun., 2 p.m., Albuquerque Little Theatre, 242-4750.
- March 3* — Resolve of New Mexico presents a Symposium on Infertility, 8:30 a.m. - 5 p.m., St. Paul's Lutheran Church, 242-4420.
- March 6* — The Best of Broadway and International Theater: "Twyla Tharp Dance, 8:15 p.m., Popejoy.
- March 9-10* — NM Symphony Orchestra concert, guest conductor: Raymond Lepard, 8:15 p.m., Popejoy.
- March 9-25* — "When You Comin Back, Red Ryder?"; Thurs.-Sat., 8 p.m.; Sun., 2:30 p.m., The Vortex (Buena Vista at Central across from UNM), 247-8600.
- March 11* — New American Ragtime Ensemble, First United Methodist Church, 4 p.m., 243-5646.
- March 11* — Horse Show, open all breed training, State Fair Horse Arena. Premiums and information from NM Buckskin Horse Assoc., 898-5939.
- March 15* — Chamber Orchestra of Albuquerque, 8:10 p.m., Albuquerque Little Theatre, 247-0262.
- March 18* — "Music at the Museum," Sara Tutland, flute; 3 p.m., Albuquerque Museum.

## Why This Diode?

A diode is a crucial part of a particle beam accelerator. A circular device about a foot in diameter, it converts electromagnetic energy supplied by the accelerator's pulsed-power drivers into an ion beam. Diodes generate, accelerate, and focus the ion beams onto the target in the center of the machine. They also magnetically screen out accelerated electrons that would reduce the efficiency of the ion beams.

The applied-B diode ("B" is the physicist's symbol for "magnetic field") was selected over the hybrid (or Ampfion) diode for early use on PBFA-II. It offers less uncertainty in focusing a beam of lithium ions than does the hybrid diode.

A third diode type, the pinch-reflex diode, had earlier been tested and rejected by Sandia researchers and their collaborators at the Naval Research Laboratory and Cornell University.

The diode decision followed the choice of lithium as the accelerated ion. An essential task of the diode is to prevent

highly accelerated electrons from crossing the anode-cathode gap. These electrons would sap the energy of the beam by unacceptable amounts. The applied-B diode uses a magnetic field generated by an externally powered coil to make the electrons move transversely so they will not cross the gap. The hybrid diode uses a magnetic field from a self-excited coil to accomplish the same task. It also has a complicated multigridded cathode structure that has proved vulnerable to wear and damage.

The choice of lithium ions made the applied-B diode the favored design. This is because the use of lithium, with its relatively strong resistance to magnetic deflection, nullifies the main disadvantage of the applied-B diode — an external magnetic field that can cause serious deflection problems with protons. The advantages of the applied-B diode, such as its efficiency in controlling electrons, then made it the choice for the first PBFA-II diode.

## Theory of ICF

PBFA-II will be part of DOE'S inertial confinement fusion (ICF) program. Ultimate goal of the ICF program is to irradiate small pellets of deuterium and tritium (forms of hydrogen) with intense beams of ions from PBFA-II or with beams of light from lasers. These very intense beams would heat the hydrogen fuel to about 100 million degrees Celsius and compress it to about 1000 times solid density, causing the atoms in the elements to fuse. This fusion would produce a small thermonuclear explosion, the heat of which would be used to power a conventional turbogenerator to produce electricity. These microexplosions would be produced at the rate of several per second in a full-fledged power reactor.

To produce the intense pulses of energy needed to cause the atoms to fuse requires very powerful machines. PBFA-II is designed to produce 3.5 megajoules of energy in a pulse lasting only 35 billionths of a second — a power of 100 trillion watts. A power gain from a fast-opening switch that is being developed by the Naval Research Laboratory and Sandia (see main story) may increase PBFA-II's power to 200 trillion watts. The pulse is expected to be adequate for pellet ignition studies that may lead to a fusion reaction that produces more energy than has been expended to initiate it — scientific breakeven.

PBFA-II will consist of four layers of nine modules arrayed in circles like the spokes of a 108-foot-diameter wheel. The modules — each consisting of a series of capacitors, switches, and transmission lines submerged in oil and water in separ-

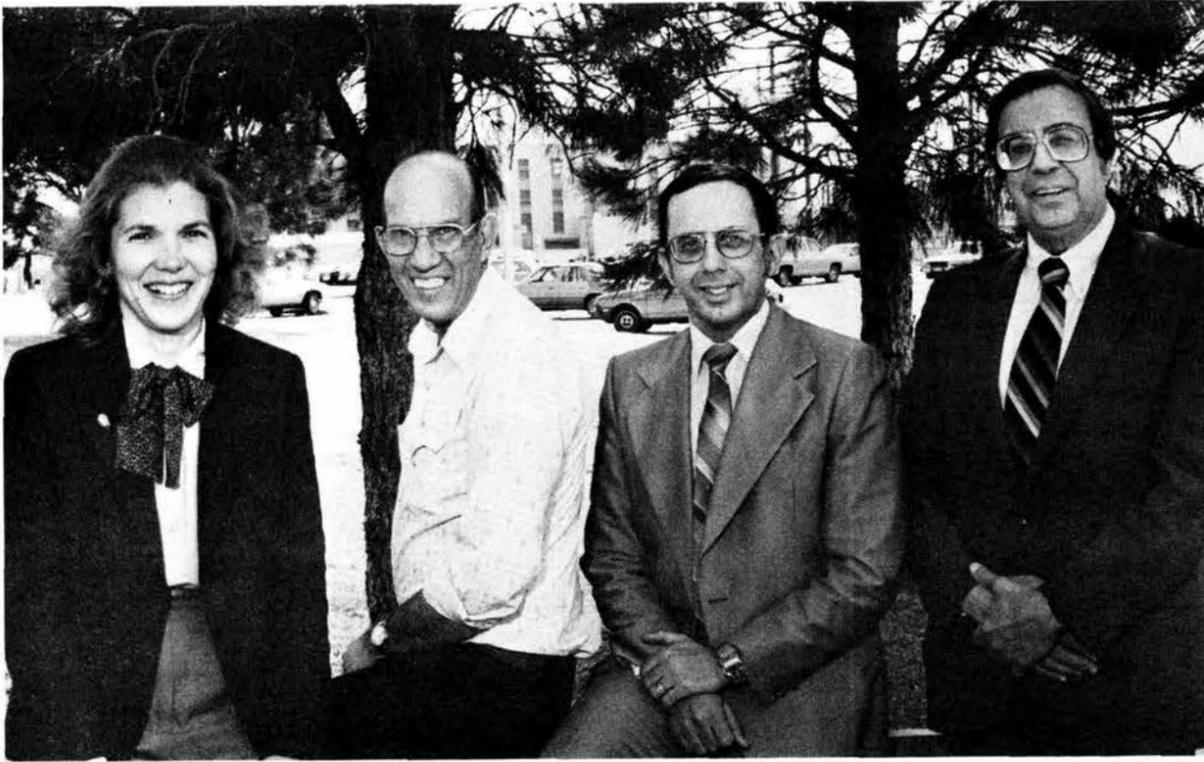
ate sections of a 20-foot-tall tank — will converge on a central hub, which is the vacuum chamber where the fuel pellet will be placed. Electric current will be passed through each of these modules simultaneously and into the diode, producing a beam of lithium ions that will impact on the exterior surface of the fraction-of-an-inch-diameter pellet.

Particle beam fusion is one of two main ICF methods being pursued at DOE-funded labs. The other is laser fusion, being investigated at both LANL and LLNL. Although focusing an ion beam to a small enough area is more difficult than focusing a laser, ion beams have advantages of cost effectiveness and energy deposition characteristics over lasers.

Another advantage of ion beams is that they are very efficient, both in the conversion of electromagnetic energy provided by PBFA-II to the kinetic energy of ions (80 percent), and in the absorption of ions by the pellet (nearly 100 percent).

The \$48 million PBFA-II is scheduled for completion in 1986. Extensive pulsed power testing will be done first, followed by ion beam formation and focusing. All of this fusion research has applications in weapons investigations as well as in potential power production.

PBFA-II will replace PBFA-I, the present accelerator that is capable of producing 30 trillion watts of power in a 40-billionths-of-a-second pulse. PBFA-I went on line in June 1980, and has been used to develop pulsed power technology and to test ion beam production concepts.



MAUREEN BACA (3511), RAY COOPER (7481-1), BOB EWING (316), and FRANK ORTIZ (152).

## Supervisory Appointments

MAUREEN BACA to supervisor of Equal Opportunity and Affirmative Action Division 3511, effective Feb. 17.

Maureen joined the Labs in July 1979 and was assigned to the education and training group. In December 1981 she transferred to the division that she now supervises. Before coming to Sandia, Maureen worked for DOE at the Albuquerque Operations office as a personnel officer and management analyst.

She received her BA in political science and MA in public administration from UNM; Maureen was a NASA Fellow in graduate school. She is a member of the National Society for Performance and Instruction and the American Society for Public Administration. She enjoys skiing, backpacking, and raising dogs and horses. Maureen and her husband Stephen (2314) live in NE Albuquerque.

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RAY COOPER to supervisor of Miniature Machining and Microcomputers Section 7481-1, effective Feb. 10.

Before coming to Sandia in 1967, Ray worked for 11 years at ACF Industries where he completed his apprenticeship as a machinist. At the Labs, he worked for different organizations in the machine shop for 10 years. He then worked in the active ceramics division for about four years before transferring to the W78 development division. When that work was phased out, Ray moved to his most recent assignment in Advanced Systems Division I 1651.

Ray served in the U.S. Army from 1951-53. He's completed Sandia's mechanical TIE (tech institute equivalency) course. His leisure activities include gardening and music — he plays lead guitar in a western band. Ray and his wife Janie have two grown children. They live in the NE heights.

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ROBERT EWING to supervisor of Systems Research Division VI 316, effective Feb. 17.

Bob joined Sandia in September 1961 as a member of the Technical Development Program. He received his BS in EE from Texas

Tech and his MS in EE from UNM. Bob worked with a manufacturing development organization for two years. For the next five years he was with a weapons group concerned with the development of secure containers for weapons and with the internal effects of radiation on components. From 1972 until his present promotion he was with Systems Research Division I 311.

Bob is a registered professional engineer in New Mexico. He enjoys woodworking, photography, backpacking, and church activities. He and his wife Martha have three children, two still at home. They live in the NE heights.

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FRANK ORTIZ, Jr., to supervisor of Employee Accounting Division 152, effective Jan. 1.

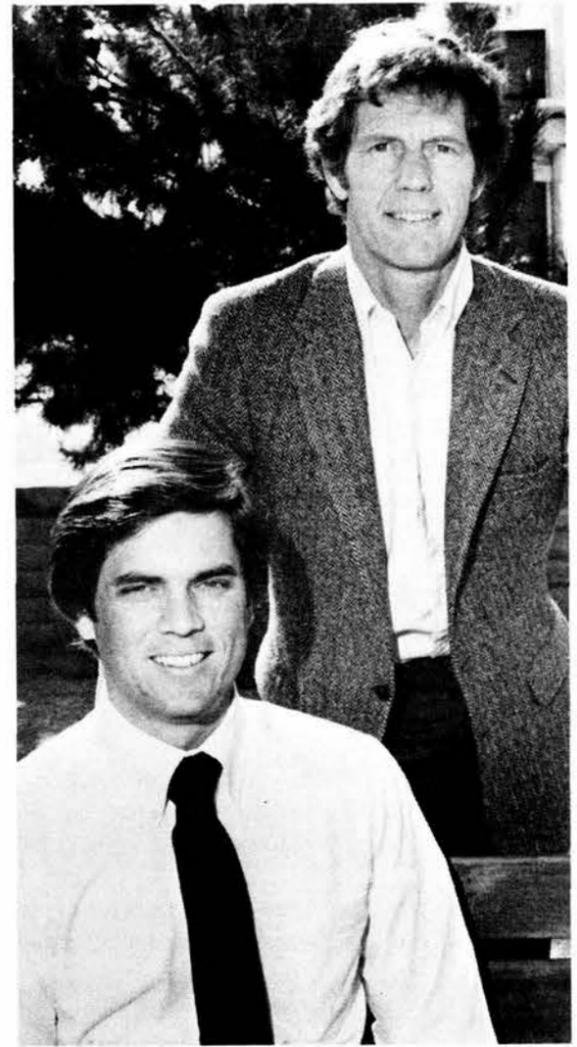
Since joining the Labs in 1967, Frank has worked in purchasing an auditor for both external and internal accounts; he was a BS/MS recruiting coordinator in personnel, worked as a systems analyst in payroll on the new payroll system, and was a systems analyst in property management systems. Before coming to Sandia, Frank served with the Governmental Affairs Institute in Washington, D.C. for two years as an auditing consultant to the government of Ecuador.

Frank received a BS in business administration from NMSU and an MA in public administration from UNM with emphasis on public science policy and administration. A Certified Public Accountant (CPA), Frank is a member of the NM Society of CPAs and the American Institute of CPAs. He enjoys camping, horseback riding, and tennis. Frank and his wife Lucille have six children — one, a 16-year-old daughter, is still at home. They live in the North Valley.

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JIM RAINES to supervisor of Salary Administration Division 3552, effective Feb. 17.

Jim joined the computing organization at Sandia as an analyst/programmer in March 1978. He transferred in 1981 to Systems Analysis and Computer Applica-



JIM RAINES (3552) and PAUL STOKES (310)

tions Division 3734 where he was a systems analyst until October last year when he moved to the salary administration division.

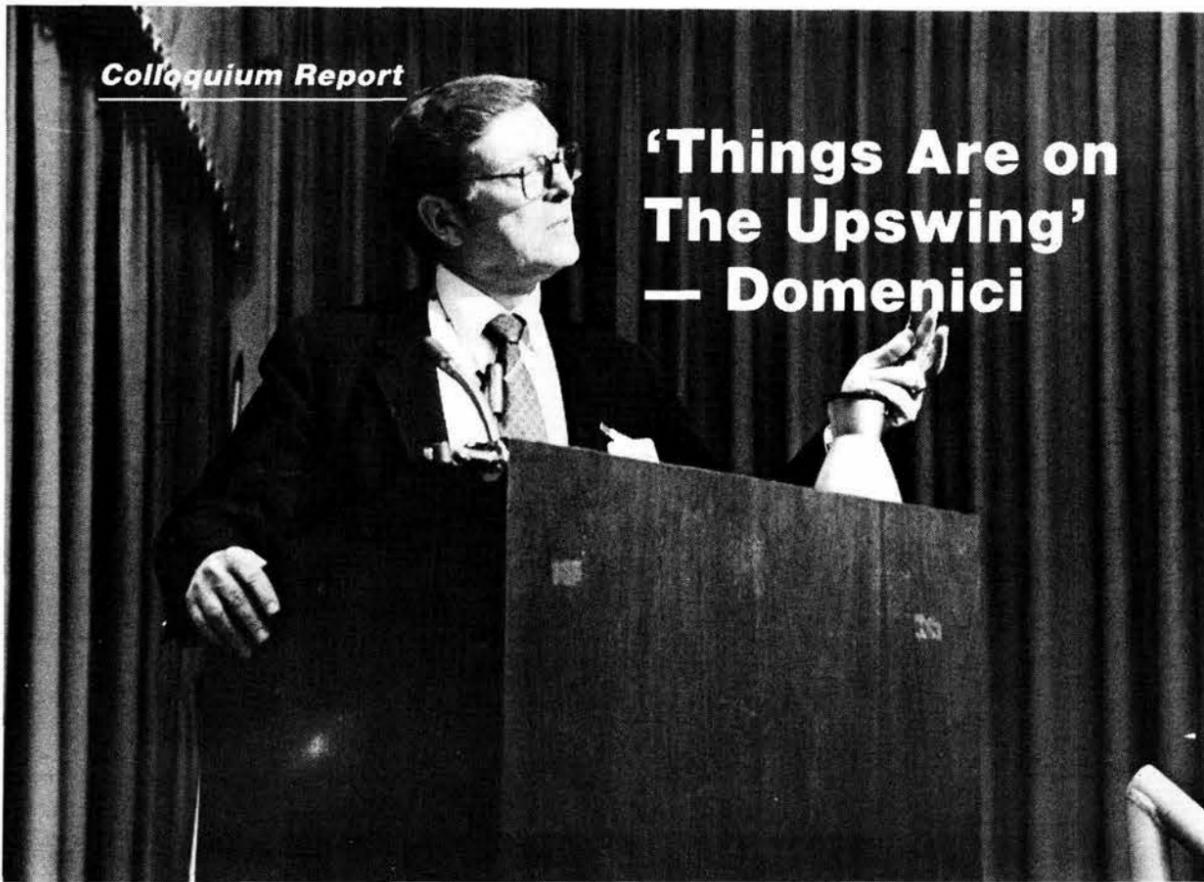
He received a BA in psychology from California State University at Long Beach and an MBA, with emphasis on computers and information systems, from UCLA. Jim enjoys reading and music. He has two sons and lives in the SE heights.

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PAUL STOKES to manager of Systems Research Department 310, effective Feb. 17.

Following graduation from North Dakota State University with a BS in EE, Paul joined the Labs in July 1960 as a member of the Technical Development Program. He received his MS in EE from UNM. His work at the Labs began with the reliability department; he moved to the exploratory systems group where he worked on command control systems, and then transferred to the Phase I and Phase II systems organization. Paul was promoted in February 1971 to supervisor of a systems analysis division where the emphasis was on arms control treaty verification. From 1973 until 1977, he supervised a group in the systems research department that was conducting systems studies on remote sensors. His next assignment was to head the National Seismic Stations development work. Since 1981, Paul has been supervisor of Systems Research Division I 311. From 1971 until the present, Paul has served as a technical advisor to treaty verification negotiating teams in Geneva.

He is a member of IEEE. He is active in community affairs and enjoys skiing and working with animals on his four acres in Corrales. Paul and his wife Laura have three daughters.



## 'Things Are on The Upswing' — Domenici

Senator Pete Domenici's recent colloquium presentation ranged over a broad variety of topics — from the federal deficit to Central America. Some highlights:

*On the recession:* Things get worse with each one. When the current recession began, economic conditions were off the charts — we started with 21-percent interest rates and 13-percent inflation. This means no growth rate, which can be devastating to a country like ours.

Now we're over the recession, we hope, and we can expect about 6.5 percent real growth in 1984 with about 3 percent inflation. We hope we've got it under control, but we're not sure. Employment is up; more people are working.

*On the deficit:* Right now there's a \$190 billion deficit. Some people think that it will disappear when the economy starts growing again. I don't believe that. We have to reduce defense expenditures from almost 12 percent real growth to 4½ to 5 percent. We'll still double the rate of defense expenditures, which among other things means that our soldiers no longer will have to live on food stamps.

The deficit can be reduced by 70 or 80 billion dollars and the economy can still grow. We need a five or six-year deficit reduction plan — no matter who is elected.

*On New Mexico and Sandia:* But even while we're reducing the deficit, New Mexico will still get its fair share. In 1983, New Mexico received \$5.5 billion from the federal government — an increase of 33 percent over the last four years. DOE accounts for one out of 10 jobs in New Mexico. Nationally, research accounts for \$47 billion — in 1985 this figure will be over \$50 billion. Sandia received \$622 million in '82 — in '85 that figure will be \$821 million.

New Mexico has a magnificent base of science and technology — it is a talent pool of great ideas and great capabilities. We must use this to attract new business and encourage more private sector development. New Mexico's biggest problem is underemployment of its people. We must bring good jobs to the state.

*On energy:* There is a 100 percent prob-

ability in the 1980s of some kind of major oil supply disruption in the Middle East. We are trying to prepare for this — for instance, the Strategic Petroleum Reserve program. And synthetic fuels will get going again. We must continue our efforts in photovoltaics, geothermal, and other forms of alternate energy.

Since energy is the basis of a growth society like ours, we must exploit every source. A couple of generations from now, people will look back and criticize us for our failure to use nuclear energy. The future is filled with turmoil and problems over coal and oil. I'm for going with nuclear energy. It's much safer than the others.

*On tax reform:* There has been a lot of reality and a lot of myth surrounding the flat rate. We have to address certain things about our tax system — it's not fair and it's too complicated. I wouldn't be surprised to see some kind of value-added tax concept proposed.

*On Paul Volcker and the Federal Reserve:* I consider the Federal Reserve to be an accidental act of American genius. No free society has ever been able to control inflation and devaluation of its currency without giving someone extraordinary powers such as in Germany after World War I and France under DeGaulle. The Federal Reserve is America's safety valve — we have to do something dramatic when we have problems. Volcker is tough, smart; [he can] take the heat, knows what he's doing — he'll finish his term.

*On El Salvador:* I'm a staunch advocate of the full package advocated by the Bipartisan Committee on Central America, sometimes misnamed the Kissinger Commission. I hope the aid program will set democracy in motion and get those countries to start moving.

\* \* \*

Summing up, Domenici said, "Things are on the upswing. There's more optimism, although I wish I could see greater concern about the deficit.

"We're lucky [in the U.S.] because we're free, and we should be proud of our economic system, which is the envy of the world."



Here are a couple of volunteer opportunities for Sandia employees, retirees, and families. If you are interested, call Karen Shane (4-3268).

KNME-TV has set aside Tuesday, March 13, 5:30 - 11:00 p.m. for "phone friends" from Sandia to help with their on-air pledge drive. That evening's broadcasts will include NOVA, a program Sandia helps to underwrite.

SIERRA CLUB needs volunteers to help Friends of La Cueva preserve lands in the Sandia foothills for public ownership.



ECP AT WORK — Hogares counselor Marcia Ellis and a resident make use of the clothes dryer purchased with money from the ECP Reserve Fund. Hogares is a group home for teenagers who require some short term counseling and other services.



Both research and common sense agree that your chances of quitting smoking are better if you live with a non-smoker. So, to improve your chances of quitting for good, employees are encouraged to bring their mates (smoking or non-smoking) with them to Medical's next Quit-Smoking class. It runs noon to 1 Mondays and Wednesdays from March 12 through April 4 in Bldg. T-13. To enroll, call Arlene Price (3330) on 6-0021.

## Take Note

A Summer Study on the Design and Utilization of the Superconducting Super Collider is set for June 23-July 13 at Snowmass, Colo. Sponsored by the American Physical Society's Division of Particles and Fields, the DOE, the National Science Foundation, and the Universities Research Association, the invitation-only gathering is designed to provide an opportunity for the high energy physics community to participate in the definition of the SSC and to identify and solve the technical problems associated with the SSC. To apply for an invitation, fill out an interest form in the LAB NEWS office and return it to Argonne National Lab by April 1.

\* \* \*

Contributed papers for presentation at the 20th Annual Symposium of NM Chapter of the American Vacuum Society are being solicited. The Symposium will be held at the Albuquerque Hilton on April 17-19 and will include a three-day technical program, a four-day program of educational courses related to vacuum technology, and a two-day vendor equipment exhibit. For more information, contact Symposium Chairman G.A. Reeves (LANL), 843-4290. The abstract deadline is March 15.

\* \* \*

Parentcraft, a non-profit organization that provides information and support to parents of infants and young children, announces the following workshops: "Time Management and the Working Parent" — March 10, 9:30-11:30 a.m., "Growing Up With Working Parents" — April 14, 9:30-11:30 a.m.; both workshops will be held at Immanuel Presbyterian Church, 114 Carlisle SE. For registration and information call Parentcraft at 256-1191.

\* \* \*

The New Mexico Museum of Natural History will present a lecture and slide show on March 14, 7 p.m. at the KiMo Theatre. Frank Kottowski, head of NM Bureau of Mines and Mineral Resources, will discuss "The Natural History of New Mexico's Mineral Wealth." Admission is a donation to the Museum.

On the March 30-April 1 weekend, the Museum is sponsoring a field trip to New Cave and Carlsbad Caverns. Carol Hill, geologist and cave expert, will guide the group (limited to 20). The group will depart by bus from the Museum office at 5 p.m. on Friday and return Sunday evening. Cost to members is \$75, nonmembers, \$90. For registration, call 841-8838 or 841-8840.

Net proceeds from these programs will be used for the development of the Museum's educational projects.

\* \* \*

The Albuquerque Public Schools Parent Center will offer a series of seminars during March and April on issues of home and family living. These workshops are free of charge and sponsored by APS as a public service to the community. A list of "Seminars for Parents" is available in the LAB NEWS office, Bldg. 814; stop by and pick one up.

\* \* \*

The South 14 Bookstand — *A Taos Mosaic: Portrait of a New Mexico Village* is a lovingly drawn sketch of that village north



SOME SOLAR ENERGY in the form of wind accompanied DOE Under Secretary Pat Collins on his visit to Sandia recently. He was briefed on photovoltaics, weapons, combustion at Livermore, and energy before touring the Central Solar Receiver Facility. Collins (second from right) is flanked by Virg Dugan (6200) and Al Narath (10). On far left is Denny Krenz of DOE/AL.

of us which, today and yesterday, gives new meaning to the word "strange." The book is written by Taos bookseller Claire Morrill, who takes us by all the certified characters: Mabel, Brett and Freida, then there's DH, Becky James, Pat Barela, Gisella, Spud, Miss Lizzie, and even Dennis Hopper. How come no Ernie Blake? Claire describes the peyote cult, the Penitentes, the two revolts and concludes with something called "Taosiana." All in all, Taos Mosaic is fun to read and has a bunch of Laura Gilpin photos. The town comes across as the place in the Southwest for serious eccentrics; those who prefer only to posture select Santa Fe. It's by the UNM Press and runs \$12.95 at the LAB NEWS office, Bldg. 814.

\* \* \*

For someone who had never entered a contest, Judy Gander (1813/1814) came out a big winner on her first try. Brown and Williamson Tobacco Company sponsored a contest recently for residents of New Mexico. The contest was a word game, and Judi was intrigued. She sent in her solution to the puzzle and was notified that she was one of five finalists in the state.

On Feb. 16 these five finalists and contest officials met at the Classic Hotel in Albuquerque. The contestants were given another puzzle and were allotted three hours to solve it.

Judi was the winner. Her prize? \$100,000!

"I was in a state of shock," Judi says (she still is!). "My husband was more excited; he had been pacing the hallway while I was working on the puzzle, and he had built up a lot of excitement!"

Judi has no immediate plans except for a summer vacation in the East. "I'm just going to slowly let it sink in," she says.

\* \* \*

The Edelweiss German American Club is sponsoring the third annual Fasching (Mardi Gras) Parade and *Bier und Wurst Fest* under the big-top tent on March 4 at the club's headquarters at Quincy and Menaul

NE. Food service begins at 11, drinks at noon, and the parade at 1 p.m. Lots of oompah-pah music and free beer mugs and glasses with purchases of imported beer. For more information, contact Larry Lopez (3151).

\* \* \*

The Maxwell Museum of Anthropology announces an opening reception for a photo exhibit, "Turning Leaves: Photographs from Japanese-American Families in Gallup, NM," from 2 to 4 p.m. on March 4. The exhibit presents the experiences, changing lives, and traditions of three generations of Japanese-Americans in New Mexico. The exhibit will hang in the East Gallery through July 1.

\* \* \*

Mary Louise Cleave, NASA astronaut, will make a 45-minute presentation on the U.S. space program at 3 p.m. today (March 2) at the Theater Bldg. 815 (outside the Tech Area). She will be hosted by Sandia's Women's Program Committee; for more information, contact Yolanda Padilla-Vigil (3511).

\* \* \*

"The State of the Economy" is the title of a talk by Warren Law, professor of finance and banking, Harvard Business School, on March 23 at 7:30 p.m. in Room 2401 of the UNM Law School (1117 Stanford NE). The \$5 admission fee will benefit the local Harvard-Radcliffe Club's scholarship fund.

\* \* \*

Apologies to retiree Bob Byrd — we spelled his name Boyd in the last issue. Sorry, Bob.

## Congratulations

Rebecca (5123) and John (7535) Arnold, a daughter, Elizabeth Michelle, Jan. 19.

Patricia and Glenn Perkal (3734), a son, Nicholas Adam, Feb. 17.

## Fun & Games

**Golf** — The Sandia Golf Association (SGA) announces a schedule of 14 tournaments for the coming season with the opener (called the "Rusty Swing") set for Los Altos on April 7. It's a two-man scramble. Tourneys will be held at Socorro, Los Alamos, Santa Fe, and Cochiti as well as at local courses. For a copy of the schedule, or for enrollment information in SGA, contact Leon Chapman (6432), 4-9158.

\* \* \*

**X-C Skiing** — The NM Ski Touring Club and Strings 'n Spokes are sponsoring the Bluebird Mesa Cross Country Ski Race on March 11 at 12 noon at Bluebird Mesa Road. (Take NM 44 to Cuba, then east on NM 126 for 11 miles to the Bluebird Mesa signpost.) Arrive early to sign up. The race is 10 km or 20 km for six age classes (beginning at age 13), male and female; entry fee is \$5 (\$4 NMSTC members) and \$2 for juniors. Ribbons will go to the first three finishers in each age group for both the 10 km and 20 km. Additional prizes from Strings 'n Spokes will be awarded by drawing. More information from Larry Costin (1542), 292-2396, or Stewart Kohler (2334), 294-7150.

\* \* \*

**Basketball** — The Big Brothers/Big Sisters Auxiliary is sponsoring a basketball game on March 18, 1 p.m., at the Heights Boys Club, 3333 Truman NE. The \$1 admission allows you to see the game between Big Brothers/Big Sisters and the KGGM All-Stars. Cost of the ticket is a tax deductible contribution; if you can't attend but would like to make a contribution, any tickets purchased will be passed on to someone who will use them. Purchase tickets at the door or contact the Big Brothers/Big Sisters office, 5321 Menaul NE, 881-2266.

\* \* \*

**Square Dancing** — A square dance program starts March 12, 7 p.m. in the ballroom of the Coronado Club. Employees, spouses, and dependents are eligible; cost is \$1 per person. More information from John Lewin (6446), Marv Plugge (5211), or Ed Ehrman (2154).

\* \* \*

**Corporate Cup** — Those interested in participating in the Outdoor Corporate Cup May 18, 19, and 20 should attend the organizational meeting March 14, 4:45 p.m., in the El Dorado Room of the Coronado Club. Information on practice schedules, events offered, time trials, team jerseys, etc., will be presented. Free snacks and beverages will be available. All employees are eligible to participate; you don't have to be a track star to join in. Both males and females in the 40+ age range are in particular demand to balance out the team.

\* \* \*

**Softball** — An organization meeting for the SERP softball season will be held March 15 at 4:45 p.m. in the El Dorado Room of the Coronado Club. Discussion will include team rosters, league rules, starting dates, roster deadlines, and money-due dates. At least one team representative must be present. League President Bob Biefeld (1154) encourages anyone interested to attend.

## Feedback

*Q. Doesn't anyone care about the appearance of the Labs anymore? I'm embarrassed to lead visitors to — and through — the building where I work. Litter around trash bins, garbage cans in walkways, benches upside-down, boxes lying in halls and against fences, abandoned equipment rusting away outside buildings — all of these can't be blamed on our current construction projects.*

*Whenever I try to locate those responsible for specific housekeeping breaches, the buck gets passed to infinity!*

*Can't we make someone responsible for making a place we can be as proud to live in as we are of our technical accomplishments?*

A. Yes, some of us do care about the appearance of Sandia Labs, and yes, we are trying to do something about it. Recently a committee of Directors has been named that will be concerned about space, housekeeping, and appearance in and around the major buildings. This should lead to some improvements.

The Telecon Desk (4-4571) will take requests to have specific items picked up or cleaned up. Sometimes the Telecon Desk may refer you to some other organization, but will generally take your request without passing the buck.

But we can't depend totally on others — a little bit of thought and concern by each of us can contribute to a better appearance and less work for some others. For instance, don't place cardboard boxes with plastic "peanuts" or paper outside where the wind can scatter the lightweight material all over the area. Just a little effort to secure the box top would help the Grounds Maintenance crew from having to pick up the mess.



LOOKS AS IF the Feedback writer was right. These shots were taken near Bldg. 822, but the scene is, sad to say, stereotypical. The answer is simple: stash the trash so the wind can't get at it, then call Telecon for pick-up service.

We are continuing to add outside landscaping. The most recent project is on 11th Street just north of Bldgs. 821 and 823. We plan to eventually extend this landscaped mall north to Gate 6.

I appreciate your concern about the appearance of our area, and I hope that you will share your concern with other employees and try to enlist them in our joint efforts to make Sandia a more pleasant place to work.

R.W. Hunnicutt - 3600

## Death

Jerry Gonzales of Process and Development Laboratories Division A 7471 died Feb. 17 after a long illness. He was 34.

He had worked at the Labs since October 1974.

Survivors include his wife and daughter.



## Hi-Yo, Silver

### Classical Kazoo Concert Coming

The public is invited to participate in the "largest orchestra ever to perform in New Mexico" on March 4, 2 p.m., at Popejoy Hall on the UNM campus. The concert will open this year's fund drive of the New Mexico Symphony Orchestra. Participants will be invited to play the "Lone Ranger" portion of Rossini's "William Tell Overture," and should bring kazoos, combs, banjos, guitars, recorders, or any musical instrument they want to play. The Watermelon Mountain Jug Band will be on hand to lend musical support and will give a public demonstration of the finer points of "comb-playing." A special souvenir commemorating the occasion will be given to the first 1000 participants in the fund drive kick-off. Sheet music will be provided, and Roger Melone, NMSO Associate Conductor and Choral Director, will conduct "the Great NMSO Play-In."

**Volleyball** — SERP's spring volleyball season begins April 2. Deadline for team rosters to be turned in to Brenda at SERP Central in the Coronado Club is March 16; contact her on 4-8486 for official roster forms. Employees, spouses, and dependents are eligible to participate as well as DOE employees and approved contractors (and their households). Games are played at the East Gym Monday through Thursday. The cost is \$8 per player; teams can be all male, all female, or mixed.

# Modern Egypt Is For Americans

*Editor's Note: Remember the great Cancúnophobe/Cancúnophile controversy in which the merits of the Mexican resort were fiercely debated in these pages? Well, now there's a clash of opinions on another part of the world — Egypt this time. Two peripatetic Sandians disagree with some of Les Harris's impressions of the land of the Nile (LAB NEWS, Nov. 11, 1983) and offer their differing opinions.*

A basic travel rule is that one should avoid the Arctic in winter and the desert in summer. Tourists who have complete freedom in the timing of their visit to Egypt select the spring or fall.

We chose April and were not uncomfortably hot. In fact, I was uncomfortably cool in a short-sleeved shirt at the evening Sound and Light Show at the Sphinx.

Cairo is dusty with fine sand particles from the Sahara, which surrounds it. It is true that most of the city's streets could use a cleaning. Maybe Cairo's mayor, like ours, has reduced street sweeping to a semi-annual event.

Disorganized? The Egyptians seemed to know where they were going. It was the Americans, like me, who felt overwhelmed, intimidated, and disorganized trying to cross five, six, even seven lanes of traffic with no walk lights or pedestrian crossing lanes.

I do, however, agree about the friendliness of Egyptians. Can you imagine a New York City cab driver offering to meet you when you returned to Grand Central Station at 9 p.m.? Then find him walking toward you on the platform when you arrived an hour late? And, enroute to the hotel, he stops at a roadside stand to buy you and your wife a drink? Likely not in New York (or Albuquerque for that matter), but our Cairo cab driver did the local equivalent of just that.

Fear of Pharaoh's Revenge kept us from most restaurants. An exception was the Arabesque in downtown Cairo. Chateaubriand for two with drinks and tip came to about \$13.

And after figuring out that "lower Egypt" is actually the north and "upper Egypt" is the south, I thought that someone



CAIRO street scene

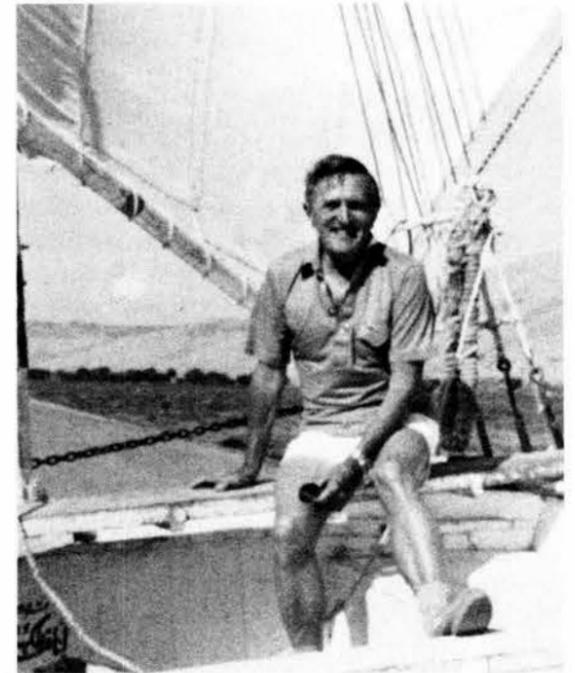
should write a song called "Oh, Way Down South in Upper Egypt."

(Ed Neidel — 2361)

I was disappointed to read the statement that "modern Egypt is not for Americans" — a generalization in which I would not like to be included. After spending a week there in early October, I would have to agree that Cairo is a bit of an assault on the senses with incredibly crowded sidewalks and unbelievable traffic. However, the "dirt and disorganization" didn't appear to be any worse than that encountered in downtown Los Angeles, New York, or Boston.

It seems that many Americans arrive in foreign countries with unrealistic expectations and quickly become angry, discouraged, and disappointed. What a shame — Egypt has so much to offer that more than compensates for the minor frustrations!

Perhaps we were somewhat more adaptable than the average American tourist, having spent the previous month on the back roads of Kenya. There we quickly learned that a little patience, a lot of smiling, and occasionally a bit of "baksheesh" go a long way — some advice to which altogether too many Americans, sadly, seem totally oblivious. Foreign travel offers such a wealth of experiences: the only requirements are a willingness to forgo a few



CLEOPATRA'S BARGE it ain't, but Ed Neidel (2361) enjoys it just the same.



ALL Egyptians weren't as stone-faced as this one, we are assured by Carol Stein (9731).

air-conditioned luxuries and the ability to adapt to a culture whose language, cuisine, social customs, transportation system, and general way of life may be completely different. Many tourists deprive themselves of so much enjoyment because they lack this flexibility.

(Carol Stein - 9731)

## Retiring



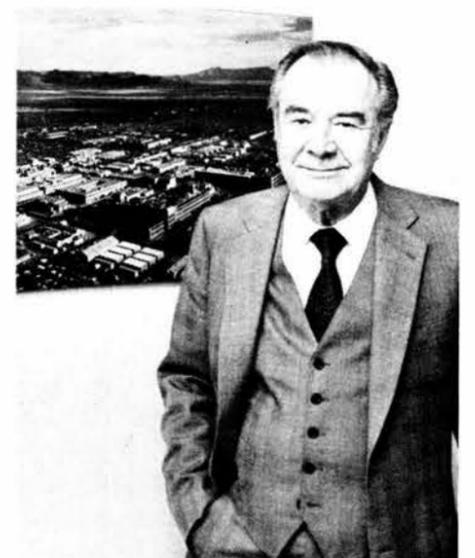
Eleanor Kelly (3543)



Richard Ashmore (5269)



Ramona Grandstaff (7631)



Clayton Guynes (2000)

# MILEPOSTS

## LAB NEWS

MARCH 1984

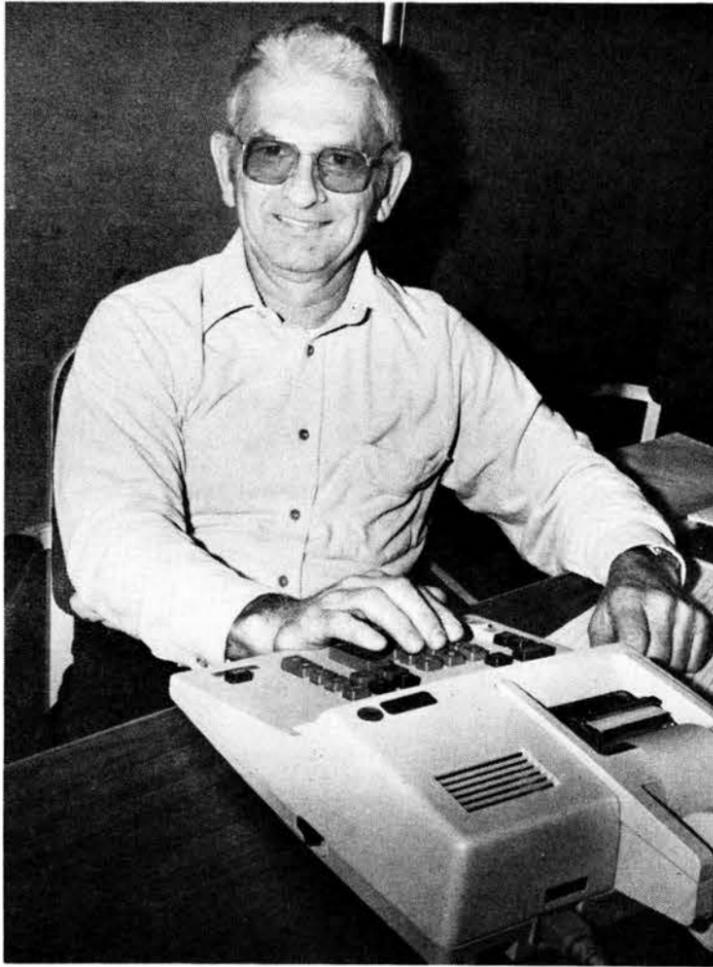


Sandy Mondot (8264) 10



Juan Griego (3713)

15

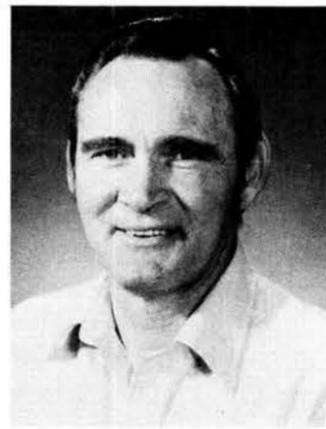


Dick Siebenforcher (151)

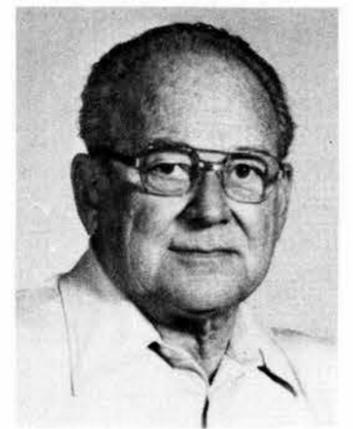
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Patrick Tamayo (8466) 10



Charles Jenkins (2312) 15

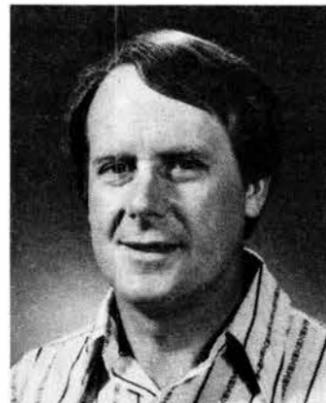


Phil Sites (8123)

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Don Peterson (7612) 25



Bill Boyer (1251) 15



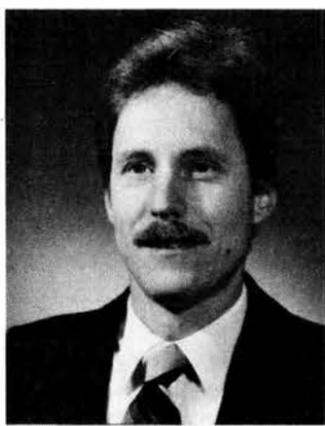
Dennis Miyoshi (5240) 15



Glen Kepler (1810) 20



Tom Wright (1231) 15



Bruce Bulmer (1652) 15



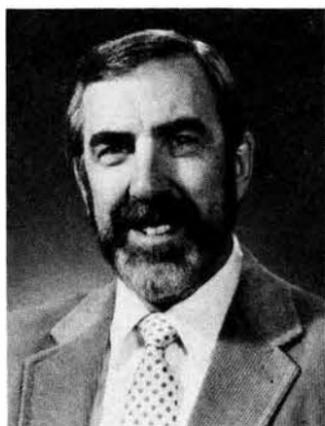
Mickey Sanchez (3413)

30



Doug Loescher (2121)

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Joe Stiegler (3660) 25



Vic Wells (2147) 10



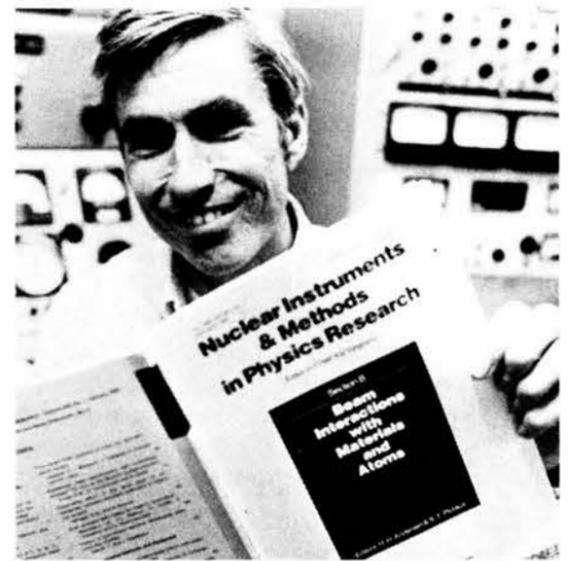
David Bennett (6415) 15

# Favorite Old Photo

That's my dad, Albert Singleton, on his Pope motorcycle in Lima, Ohio, in 1916. He and his friend in the sidecar traveled by cycle to Niagara Falls before each was married. (Howard Singleton, ret.)



**Editor's note:** A local cycle expert identifies the machine as a 1916 Pope touring bike with factory sidecar. That would make it a 988 cc, V-twin, 8 hp, overhead valve bike with plunger rear suspension. Its headlamp is carbide power. The sprocket on the front wheel drives the speedometer. The gauntlet-style gloves and the high-top boots are exactly in style for the period; the boots protected the rider from hot oil that splattered from the engine's exposed valve stems and springs. The Pope company, though better known for its cars, built an impressive range of bikes between 1911 and 1918.



TOM PICRAUX (1111) examines the first issue of the new *Section B of Nuclear Instruments & Methods in Physics Research*. Tom is the editor of the new technical journal section, which reports developments in materials modification and research using accelerators and energetic beams. Tom had contributed numerous articles to the journal before its expansion and chaired international symposiums reported and published by the journal.

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### MISCELLANEOUS

CAMERA: Cononot Gill 35mm range-finder, list \$206, used twice, orig. box & registration papers, \$75. Smith, 242-9576.

DUCKS, \$7: 50-egg incubator, \$50; 1200-egg incubator, redwood, any size egg, \$350; cattle hay, \$1.50; chicken feeders & waterers, all prices. Lackey, 898-6638.

BOOTS, leather, size 6, \$60. Leatherman, 877-8173.

MODEL railroad table, 7' x 11' in sections; 2 green side chairs; 2 bed frames. Sitts, 821-3469.

RECLINER, rust Herculon fabric, \$150; two 3-spd. English bikes, \$35 ea. Daniel, 268-8335.

PUSH guards for Chevy or Ford pickups, made of heavy steel, black only, \$50. Lesperance, 298-5203.

BELL 500-TX helmet, 7½, \$40; misc. parts for pre-1971 BMW 1600/2002, negotiable. Murata, 881-8459.

90" SOFA, \$75; matching chair, \$25; both w/slip covers; port. GE dishwasher, \$75. Pavelko, 296-3346.

FIREPLACE, freestanding, complete, \$250; Kroehler sofa, \$75. Rouckus, 294-7194.

TWO Table lamps; one floor lamp. Campbell, 299-4830.

BOYS size 8 boots, 172cm skis, bindings, poles, \$100; girls size 6 boots, \$35; 42" poles, \$5. Foor, 298-4980.

HIGH CHAIR without tray, \$5; child's platform rocker, \$10; collectible items; 27½ x 22¼ Shirley Temple doll picture & more. Smith 299-7151.

KITCHEN table, butcher block look, w/1 leaf & 6 brown vinyl chairs w/casters, 2 yrs. old, \$300. An-

dreas, 296-3351.

XEROX 820 single board computer (big board) w/two 8" dbl. sided dbl. density disk drives, \$750. Belding, 294-7443.

TELEVISION: Zenith model 8314-6, chassis 25N38, wood cabinet. Shoemaker, 255-8820.

VIOLIN, ¾, Scherl & Roth, w/case, music stand, \$230. Banks, 293-5248.

FLOURESCENT desk lamp, Dazor Floating Fixture, uses two 15-watt tubes, 42" reach, \$45. Korbin, 821-9658.

MDS TV Reception system, \$60; Canon 19mm f/3.5 lens, FL series, \$100 OBO; tire, P225/70R15, radial, \$20. Bernard, 256-7772.

LARGE wooden desk, 7 drawers w/dividers & glass top; Shorten-carrier, 292-3575.

CHROME rims, 15", 5-hole, wide, fit Ford PU, \$30 pair; stock rims for Chevy PU, 15", 5-hole, \$20 pair; electric drill chain saw sharpener, \$8. Shunny, 265-1620.

GAS broiler, port. propane tank, \$95. Stang, 256-7793.

HOTPOINT microwave oven, 2 yrs. old, \$225. Smith, 836-1676 after 5.

FURNITURE: mahogany coffee table, drum table & 2 end tables; kitchen table & 2 chairs; 2 o'stuffed & 2 upholstered chairs; 24" & 30" pole shelf group. Hewitt, 299-6592.

CB 40-channel tranceiver, TRC-421A Realistic w/quick release antenna & mount, \$60; 2 bucket seat sheep skin seat covers, \$40. Gorney, 821-9623.

SOFA, earthtone, \$125; oak, glass top coffee & end tables, \$35, \$25; 2 Lazyboys, \$35 ea. Clough, 897-1539.

D-41 Martin guitar w/hard case, left handed, \$1400. Perryman, 281-3020.

DINETTE set, white table & 4 white bentwood chairs. Peters, 293-6356.

OAK bedroom suite: triple dresser w/3' x 4' mirror, chest, night stand, king-size headboard, \$750; small desk, \$35; misc. furniture. Treadway, 345-7302 after 4.

FIRE WOOD, a big old cottonwood cut and ready for you to haul away, some needs splitting. Barnaby, 265-4353.

FORD garden tractor, 16 hp, hydrostatic trans., 50" mower, garden cart, used 150 hrs., \$2900. Larsen, 281-2454.

WHIRLPOOL Imperial MK XII washer, beige, 3-spd., 5-cycle; 2-spd., 5-temp. gas dryer, both for \$150 OBO. Boyles, 344-3872.

CHILDREN'S beds: 1 unit, captain style trundle beds w/3 storage drawers, \$125. Sallee, 296-9116.

PING-PONG Table, net, paddles, etc., \$40; rotary lawn mower without catcher, \$25. Binder, 299-2937.

BOX 12 ga. 3" magnum shells, Winchester Super-X plastic 1 5/8 oz. #4 shot, \$10. Brammer, 266-5158.

PVC pipe, schedule 40¾", galvanized pipe ½" + ¾", building lumber; plywood; particle board. Mozley, 884-3453.

MIMEOGRAPH machine; pricing machine; adding machine. Mozley, 884-5225, 299-4204.

CHAIN SAW, Craftsman, 14" bar, extra chain, vinyl case, \$85. Hall, 298-8617.

ROLLAWAY twin bed, \$50; twin headboard, \$10; blue bathroom sink, \$10; dbl. porcelain kitchen sink w/countertop, \$10. Zirzow, 298-1479.

WHEELCHAIR, Everest & Jennings Premier, \$150; commode, tubular steel/toilet seat, \$50. Getz, 299-4865.

FREE puppy, purebred female Doberman-Pinscher, about 3 mos. old, has puppy shots, excellent markings. Chavez, 298-0674.

SLEEPING BAG, Mummy style, 32 oz. down filled, 61" x 84", Slumberjack Honkers model, left zipper. Perkal, 299-5040.

CAMPER, ¼ cabover, 8' slide-in, jacks, tie-downs, pressure water, g/e refrig, furnace w/thermostat, stove, 54" bed, 2 yrs. old, \$2650. Meyer, 296-9066.

SKIS, Fischer cut 70 w/Marker M-25 bindings, 170mm; Karhu X-C w/Troll bindings, 210mm; Jansport backpack; EMS 60/40 parka. Ritchey, 268-7620.

WHEELS: four 15 x 8 white spoked, 5-bolt pattern to fit Dodge, Ford & Jeep. Spence, 294-0524.

### TRANSPORTATION

'69 SHELBY GT 500 fastback, AT, PS, PB, 90% restored, \$9500 OBO, consider partial trade plus cash. Lesperance, 836-5084.

'76 TRANS AM, AT, PS, PB, AC, tilt wheel, new carpet, new paint, 400 engine, AM/FM cass. Jaramillo, 1-864-8491.

'71 FORD pickup; '76 Honda 360 CJ; Sony 6' big screen TV; '77 Jeep CJ7; '77 BMW 320i. Moss, 299-6573.

BLOWN block, 230 straight 6-cyl. Chevy w/fly wheel & motor mounts, \$50. Smith 299-7151.

'78 OLDS Omega 2-dr. Brougham coupe, V6, PS, PB, AT, cruise, 41K miles. Carter, 296-8709.

'71 TOYOTA Corona, 4-dr., AT, R&H, \$1295 OBO. Pedro, 344-2104.

BOAT, 14' aluminum w/35hp Johnson

outboard, gas tank & trailer, needs minor work, \$995 OBO. Garcia, 268-3848.

'76 DODGE Aspen coupe, AT, new paint, \$1200. Barton, 268-7349.

'77 TRIUMPH Spitfire convertible, low mileage, AM stereo cass., red, \$330. Zurawski, 268-9511 after 5.

'77 CAMARO-LT, vinyl-T, V8, 350, AT, stereo, 8-track, AC, PB, PS, tilt-w, TAC, \$2995. Stang, 299-8688 after 5.

'74 CHEVY pickup, LWB, 4-spd. trans, dual tanks, 55K miles, \$2350. Garcia, 888-4735.

'79 FORD ½-ton pickup, LWB, 4 x 4, PB, PS. Salazar, 877-0103 after 5.

'82 YZ80 dirt bike, \$625. Smith, 836-1676 after 5.

'83 17' SKI BOAT, 115HP Evinrude, Tilt-Trim, under warranty, extras, list \$10K, sell \$7200. Elisco, 292-3180.

'78 HONDA Goldwing, 21K miles, Vetter fairing & bags, \$2700. Perryman, 281-3020.

BOAT: Ranger, 335V bass, ski; fully equipped, 140HP Johnson, Ranger trailer. Flanagan, 884-5054.

'71 VOLKSWAGEN bug, one owner, complete maintenance records, new battery, \$2100. Glenn, 821-6952.

'80 CITATION, \$2850, 2-dr. coupe, 4-spd., AM-FM, AC, PW, PL; Trailer, \$750, used to pull above car behind RV, will fit any small car. Laymon, 822-1749.

'79 DATSUN 510, 5-dr. wagon, 54K miles, AC, 4-spd., \$2800. Roeschke, 298-0365.

'81 YAMAHA IT465, very fast, ridden less than 200 miles, \$1800. Larsen, 281-2454.

'79 HONDA Express II motorbike, low mileage, \$400 negotiable; custom no lift RV carrying rack for above, \$100. Broyles, 344-3872.

198 HONDA CX500D, 9800 miles, crash bars, luggage rack, new rear tire, Plexifairing, cover, 2 helmets, \$2200 OBO. Zirzow, 298-1479.

'82 SUZUKI GS650GZ, shaft drive, AMCO rack & backrest, \$2200; Vetter windjammer V fairing, \$225. Boughton, 298-6576.

'67 FORD F-250 pickup, LWB, 352 V8 engine, AT, Camper Special, \$1375 firm. Roody, 299-6084.

'69 VOLVO 144S, rebuilt engine, SU carbs, \$1900. Esherick, 299-8393.

'81 DATSUN 210, 2-dr., 5-spd., trans., 62K miles, \$3000. Toya, 898-0491.

MH, '79 Trailway, 14 x 70, 3-bdr., 2 bath, set up in park, completely skirted, assumable 12½ loan. Erwin, 836-2746.

MH, '80 Marsfield, unfurnished, 3-bdr.,

2 baths, stove, refrig., washer & dryer. Leatherman, 877-8173.

CUSTOM townhouse in NE area, 2-bdr., 2 bath, solarium, dbl. car garage. Neiman, 884-6727.

40 ACRES 4 miles east of N. 14 on 344, wooded, \$2400/acre on 20-yr. REC, negotiable down. Curtis, 281-3519.

HOUSE, SW, 3-bdr., 1½ bath, single garage, sprinklers, tongue & groove, fan, etc., \$10K down, \$4300 REC, \$52,000, offer. Stephenson, 836-3135.

MH, American 12' x 50', 2-bdr., 1 bath, furnished, \$6K or trade. Garcia, 888-4735.

3-BDR., den, fp, dining, 1 bath, 1100 sq. ft., NE heights near schools, shopping. Flanagan, 299-0511.

3-BDR., 2 bath, woodburning stove, Great Room w/Kiva fp, 2-car garage, solar water heat, sprinklers, horses, ½ acre, 1655 sq. ft., \$88,500. 5801 Jones Pl. NW, Walters, 836-3576.

### WANTED

DID you mistakenly appropriate my Arnold Palmer windbreaker from the Base golf course Pro Shop? Underhill, 294-5774.

LAZYBOY Sofette (dbl. recliner). Orear, 256-1941.

SOMEONE to help me design and build a cabinet-type stereo viewer for the Museum of Natural History Education Center. Mattox, 255-8327.

CAMPER jacks, 1000 lb. load capacity minimum. Trennel, 898-1224.

APT. size electric stove. Desiderio, 884-7345.

CHILDREN'S Cross country skis & boots for 7, 10 year olds. Tyner, 294-5289.

BINOCULAR microscope 5X to 30X or other; will pay for good quality. Ashmore, 881-4653.

COPY Paul Horgan's book *Great River*, take any edition, prefer hardback. Champion, 299-0163.

RELOADING equipment & dies for 30-06, 30-30, 44 mag.; med. to lg. kennel for shipping dog on airline. King, 298-2628.

### WORK WANTED

YARDWORK: deep raking, aerating, fertilizing, mowing, etc. Tom Edrington, Jr., 881-2395.

YARDWORK: hauling, trimming, raking etc., Paul Prew, 296-3815.

### REAL ESTATE

MH, '79 Trailway, 14 x 70, 3-bdr., 2 bath, set up in park, completely skirted, assumable 12½ loan. Erwin, 836-2746.

MH, '80 Marsfield, unfurnished, 3-bdr.,

### SHARE-A-RIDE

WOULD like to form car pool from vicinity of Rio Grande NW - Candelaria NW - Griegos NW - 12th NW. Garcia, 344-5310.

## Open House Tomorrow

TONIGHT at Happy Hour dining, Chef Henry wheels out a glorious prime rib to top off the buffet at \$9.95 or you can choose your dinner from the regular menu. From the bandstand, the sounds of The Sage, a country and western group, will fill the ballroom. Special prices are in effect until 8:30 when the music starts. Dining room hours are from 6 to 9 p.m. Next Friday, March 9, a group called Something Special holds the bandstand and a shrimp peel is the buffet feature.

MEMBERSHIP OPEN HOUSE — Tomorrow, all Sandia and DOE employees are cordially invited to a Membership Open House at the Coronado Club from 11 a.m. until 3 p.m. Members have noticed that the Club has been redecorated lately, many facilities added, the schedule of activities increased, and services improved. Club restaurant food is outstanding. The March 3 Open House is a means of showcasing these improvements. Free goodies and drinks will be served. You can talk with Coronado Club interest group representatives, board officers, and members. And there will be entertainment — Mary Rodriguez (3418), belly dancer, will perform from 11:15 until 11:35; Paul Vuchetich, singer and guitarist, will entertain from 12 until 1, and the Sandia Mountain Cloggers will whoop it up from 1:30 until 2:10. As an added incentive, anyone who joins the Club by signing a payroll deduction card or paying one year's dues (only \$60) in advance will be presented with tickets for a free dinner for two.

VARIETY NIGHT — After cleaning up after the Open House, the Club will be ready to welcome members and their families tomorrow at 5 p.m. when food service (super sandwiches, cokes, popcorn, and other goodies) is available before the movie starts. It's another Walt Disney classic called *The Ugly Dachshund*. Kids love this kind of stuff. There's no admission charge.

HAWAII TRAVEL SHOW, Monday, March 5 — Travel Director Charlie Clendenin (2611) has arranged for another razzle-dazzle travel show with speakers and films on the subject of Hawaii at 7 p.m. in the El Dorado Room. It's free and it's a lot of fun — the pictures are great. Travel and airline reps will be on hand to answer questions.

Speaking of Hawaii, the Club offers a travel package there on May 12-19 with airfare, seven days on Waikiki Beach, and your choice of two luxurious hotels. Prices range from \$484 to \$584. Or sign up for the New Orleans International Exposition May 25-29 for \$562. More details and literature at the Club office.

GOURMET DINING (Club 35) starts Tuesday, March 13. Mark this date very carefully, for it's the beginning of a new era at the Coronado Club. At 5 p.m. on that date, Gourmet Dining starts with a spread of special hors d'oeuvres with cocktails downstairs in the El Dorado Room in an at-

mosphere of candlelit elegance. At 6 p.m., the evening progresses to salad and appetizers followed by the masterpiece entree, accompanied by very carefully chosen vegetables and sauces, and ending with a delightful dessert and after-dinner drink — a meal for a monarch served with sensitivity and style. Reservations for only 35 couples will be accepted. The cost is \$35 per couple.

The menu will include rillettes of salmon (flaked salmon steak folded in caviar with toast points), entrecote au Roquefort (8-oz. rib eye steak seasoned and served with Roquefort butter), baked wild rice with carrots and mushrooms, spinach, endive and onion salad with mustard vinaigrette, and chocolate souffle dessert.

Gourmet Dining (Club 35) will be offered once each month. A great variety and great quality of dinners are planned, each preceded with a social hour. Reservations will be accepted each month — the first 35 couples are the Club 35 membership for that month. To be part of the first group, call 265-6791, right now.

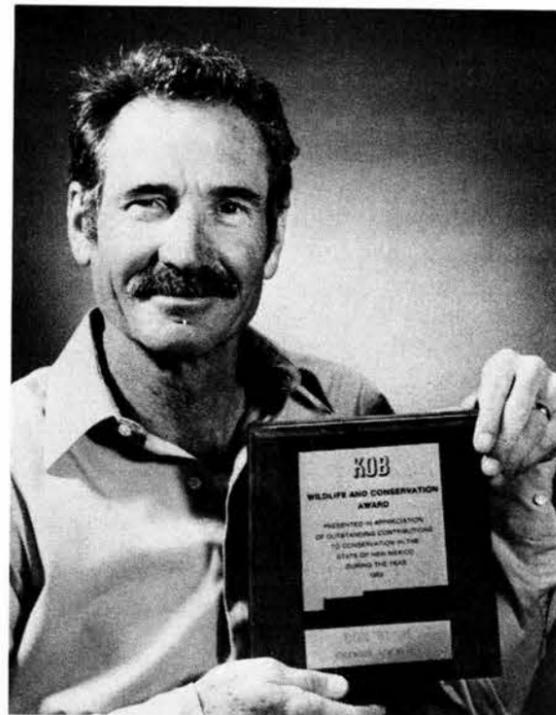
ST. PATRICK'S DAY PARTY, Saturday, March 17 — Starting with Happy Hour at 2 p.m. with special prices and free hors d'oeuvres (until 6 p.m.), this party will honor the patron saint of engineers in a proper manner. The event will gain momentum when Bob Banks and Tommy Kelly sing the olds songs at 4. Tommy is the Original Irishman. Fronting his own band, Tommy contributed many a happy evening to the old Coronado Club. He sings Irish songs that will break your heart even if you're not Irish. You can join in and sing along. At 6 p.m., Chef Henry will present a fine corned beef and cabbage dinner.

At 8:30, Together will wind it up with more singing and dancing. It will be a fine party for engineers, the Irish, and everyone else.

CHAMPAGNE BRUNCH, Sunday, March 18 — For those who missed the successful Valentine brunch last month, don't eat your heart out. Make reservations for this one scheduled from 11 a.m. to 3 p.m. The menu includes relishes, salads, fresh fruit, Swedish meatballs, sliced roast turkey, steamship round of beef, vegetable du jour, rolls and butter. Cost is \$6.95 for adults, \$4.95 for children under 12. For reservations, call 265-6791.

CORONADO SKI CLUB meets Tuesday, March 20, at 7 p.m. to elect a slate of officers to serve the 1984-85 season. Every member who attends will be presented one of the new CSC logo patches. A much-prized Flightmaster ski case is one of the door prizes to be given away. A ski movie is also scheduled.

THURSDAY NIGHT fresh seafood dining continues with the best selections available. There's a "fresh seafood buffet extravaganza" scheduled March 22, but in the meantime, selections are outstanding every Thursday.



DON BUSH (2525) was recognized recently as an outstanding conservationist with the presentation of the KOB Wildlife and Conservation Award. Don headed a team that maintained and restored trails in the Sandia Mountains for the Sandia Mountain Wildlife and Conservation Association. It was part of the "Adopt a Trail" program of the National Forest Service. Don's group has spent several years maintaining the 10k trail in the Sandias and has restored several abandoned trails in the Sandia system.

NEW BOARD MEMBER — Tom Mehlhorn (1265) has been appointed to the Club board of directors to fill a vacancy. President of the Coronado Tennis Association, Tom will also serve on the recreation, special interest group, and food and restaurant committees.

UPCOMING EVENTS include Spinning Wheel booked for Happy Hour on March 23 and the Isleta Poor Boys on March 30. On Saturday, March 31, the Club will present Dinner Theatre Night with a production of the comedy, *The Owl and the Pussycat*, scheduled for the stage and a roast beef buffet set for dining. The first of a series of financial seminars is scheduled for Tuesday, March 27, with experts from American First Financial set to discuss tax shelters.

## EVERYBODY WINS WITH GOOD NUTRITION



THE AMERICAN DIETETIC ASSOCIATION  
NATIONAL NUTRITION TIME  
MARCH '84